A PRELIMINARY LOOK AT LOCAL, STATE AND FEDERAL PROGRAMS LIKELY TO TARGET NORTHERN CALIFORNIA WATER

By
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The purpose of this memo is to provide a preliminary summary of programs that may seek to compete for northern California water. There are obviously many remaining questions regarding how these potential transfers will be authorized, coordinated and evaluated, as well as what the potential cumulative impacts will be. We are hoping that those with additional information on potential transfers will supplement this preliminary analysis and work with us to assess how much northern California water is being targeted for transfer. If water transfers are to play any substantial beneficial role in addressing California's water problems, base line data on the amount of northern California water being targeted by outside interests is critical. Without this information, policy makers will not be able to make informed decisions and California's economy, environment, and rural communities are likely to pay the price.

INTRODUCTION

In California, water transfers are being heralded by many as the quickest, least expensive, and most environmentally benign solution to statewide water supply and reliability problems. The emphasis on water transfers has manifested itself in policy changes and regional water programs. Below we provide a summary of programs that have, or may, target northern California water as a means of meeting their "ostensible needs." To assess whether such transfers are truly needed, one would need to study how well these entities are using existing resources and what they are doing to make water use more efficient. It is imperative that the cumulative impacts associated with these proposed policies and programs be properly monitored and assessed through a coordinated effort involving all relevant regulatory entities, stakeholders, and community interests. These impacts must be addressed in light of how effectively and efficiently pro-transfer programs and users are using existing resources. While these issues are not addressed here, it is hoped that the information presented in this brief paper will generate discussion and lead to answers to these and other outstanding questions.

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JOINT PROGRAMS

CALFED

The remaining CALFED alternatives propose between 4.1 and 5.6 MAF of new storage to be developed through conjunctive use/groundwater banking, upstream surface storage, in-Delta storage and south-of-Delta storage. At the onset of Phase II of the Bay-Delta Program, CALFED emphasized an intent to prioritize conjunctive use and groundwater banking over surface water storage development. Estimates of annual conjunctive use for the San Joaquin and Sacramento Valleys range from 0 to 500,000 acre-feet in each region. Current estimates of pulse flows range from 300,000 to 500,000 acre-feet of water annually.

FEDERAL PROGRAMS

Central Valley Project Improvement Act

Under the authority of Section 3406 (b)(3)[1] of the Central Valley Project Improvement Act (CVPIA), the Secretary of the Interior is directed to develop and implement a program in coordination and conformance with the Anadromous Fish Restoration Program (AFRP) to acquire water to supplement the up to 800,000 acre-feet of CVP Yield dedicated for fish and wildlife purposes by Section 3406 (b)(2), and to meet the level 4 and full-habitat development refuge water supplies required under Section 3406 (d)(2).[2]

Section 3402 of the CVPIA identifies six purposes of the act: 1) to protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley and Trinity River basins; 2) to address impacts of the CVP on fish, wildlife, and associated habitats; 3) to improve the operational flexibility of the CVP; 4) to increase water-related benefits provided by the CVP to the State of California through expanded use of voluntary water transfers and improved water conservation; 5) to contribute to the State's interim and long-term efforts to protect the Bay-Delta; and 6) to achieve a reasonable balance among competing demands for the use of CVP water, including the requirements of fish and wildlife, agricultural, municipal, and industrial and power contractors.

Preliminary discussions with Bureau of Reclamation staff indicate that elements of the CVPIA will "probably" be rolled into CALFED. However, we cannot say for certain whether or not this will actually occur, nor what the implications might be. The Ecosystem Restoration documents recently released by CALFED contain actions that are similar to those proposed in the AFRP. The AFRP and the Refuge Water Supply Program will likely benefit from supplies provided by the short-and long-term water acquisition programs. However, do the Central Valley Streamflow parameters developed by CALFED similarly correspond to the AFRP instream flow requirements?

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[1] Herein referred to as "(b)(3)".

[2] Department of the Interior, U.S. Bureau of Reclamation. *Interim Water Acquisition Program - Environmental Assessment and Finding of No Significant Impact.* October 1995.

Anadromous Fish Restoration Program[3]

The CVPIA directs the Secretary of the Interior to develop and implement a program that makes all reasonable efforts to double the natural production of anadromous fish in Central Valley streams. This program is known as the Anadromous Fish Restoration Program (AFRP) and the Bureau of Reclamation has developed an AFRP plan to accomplish the directive. Included in the AFRP plan are targets for instream flows for rivers and streams in the Central Valley and Delta. The AFRP instream flow augmentation plan includes river flow objectives at different times of the year to improve conditions for fish. The AFRP Delta proposals include limiting combined SWP and CVP exports and maintaining minimum flows through the Delta. The flow objectives developed in the AFRP will be achieved through reoperation of the CVP, dedication and management of the 800,000 acre-feet of CVP yield annually, and water acquisition, as authorized under the CVPIA. Just how much water will be acquired from willing buyers (and under what conditions) in northern California remains unclear. Unofficial estimates, however, put the figure for AFRP and (b)(3) water at 600,000 acre-feet per year, assuming a current demand level.[4]

Central Valley Refuge Water Supply Program

Under this section of the CVPIA, water is to be provided to 15 existing wildlife refuges identified in the Bureau of Reclamation Refuge Water Supply Report and to the five habitat areas identified in the Bureau of Reclamation and the California Department of Fish and Game (CDFG) San Joaquin Basin Action Plan (SJBAP) / Kesterson Mitigation Plan. The CVPIA directed immediate allocation of firm water supplies of 381,550 AF per year ("Level 2") for the 15 Central Valley refuges, and provides for two-thirds of the water supply needed for full habitat development for the five SJBAP refuges. By 2002, CVPIA mandates the increase of water deliveries for the 15 refuges by a "Level 4" increment for a total of 526,200 AF per year, plus increases the deliveries to the SJBAP refuges to approximately 63,200 AF per year. CVPIA requires that the Level 6 and "full habitat management" supplies be provided in increments of 10 percent per year from 1992 to 2002.

The Act also directs the Secretary to prepare a report which investigates the method of improving water supplies in the Central Valley for existing private wetlands and for 120,000 acres of new wetlands, which is based on the objective of the Central Valley Habitat Joint Venture Report.

Interim Water Acquisition Program

Implementation of the Interim Water Acquisition Program is not expected to occur until February 28, 1998. This program conforms to, and coordinates with, the US Bureau of Reclamation's Anadromous Fish Restoration Plan (AFRP). Through this program, the Bureau of Reclamation proposes to acquire water to supplement 800,000 acre-feet of Central Valley Project water dedicated for fish and wildlife purposes by Section 3406(b)(2) of the CVPIA and to meet the level 4 and full-habitat development refuge water required under Section 3406(d)(2).

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[3] U.S. Fish and Wildlife Service. *Revised Draft Restoration Plan for the Anadromous Fish Restoration Plan.* May 30, 1997.

[4] David Guy, Letter to Ms. Dale Hoffman-Floerke (DWR), Re: SWP Supplemental Water Purchase Program, July 29, 1997.

Implementation of the Interim Water Acquisition Program includes four components[5]:

1. Reduction of water diversions from Battle Creek for Power Generation (increase instream flows to 45 cubic feet per second).
2. Water Acquisitions for Sacramento Valley Wetland Habitat Areas (13,12[illegible] AF from Sac River, 13,123 from Feather River).
3. Water Acquisitions for San Joaquin Wetland Habitat Areas.
4. San Joaquin River Tributaries Water Acquisitions (352,000 AF Total San Joaquin Valley Use).

Long-term Water Acquisition Program[6]

This program is established to acquire agricultural water from willing sellers to supplement water for fish and wildlife restoration purposes when sufficient flows to meet flow and habitat objectives are not available through reoperation of the CVP and management of dedicated water. Acquired water will be dedicated to increase the instream flows towards the target flows identified in the Anadromous Fish Restoration Program (AFRP) Plan and to provide Level 4 refuge water supply.

A plan of action is currently being developed for the Long-term Water Acquisition Program. Estimates of the volume of water that may be acquired for fish and wildlife purposes under this program range from a high of 200,000 acre-feet annually in the Merced, Stanislaus, and Toulomne rivers to a low of 27,000 acre-feet in the Calaveras River. It is not clear at this time how AFRP flow requirements will be meshed with the CALFED Ecosystem Restoration "Central Valley Streamflow" vision.

More current public information is required relative to this program.

Least-Cost CVP Yield Increase Plan[7]

The Central Valley Project (CVP) is the largest water storage and delivery system in California. At some future date, Congress may authorize implementation of the CVP Yield Increase Plan, one of the provisions included in the CVPIA for achieving the six general purposes of the act. This provision proposes the development of a least-cost plan for increasing the yield of the CVP by the amount dedicated to fish and wildlife purposes to minimize adverse impacts, if any, upon existing CVP Contractors and to assist the State of California in meeting its future water needs.

Options that did not have known unacceptable environmental or social impacts, and could be implemented in the required time frame (CVPIA requires that the plan be implementable by 200[illegible]) have been

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[5] U.S. Department of the Interior, Bureau of Reclamation. *Interim Water Acquisition Program-Environmental Assessment and Finding of No Significant Impact.* October 1995.

[6] California Department of Water Resources. *California Water Plan Update - Bulletin 160-98. Draft Chapter 7.* 1997.

[7] U.S. Department of the Interior, *Least-Cost CVP Yield Increase Plan.* October 1995.

incorporated into the Least - Cost CVP Yield Increase Plan. They include purchase of water supplies from local projects, land fallowing, conjunctive use, conservation, urban wastewater reuse, and one new surface storage facility. The yield increases associated with these activities are summarized in Table 1.

Table 1: Least-Cost CVP Yield Increase Plan	
Yield Increase Category	**Estimated Annual Yield (acre-feet)**
Conjunctive Use - Developable Yield	70,000
Supplies from Local Water Projects	180,000
Land Fallowing	1,236,000
Conjunctive Use - Active Recharge	840,000
Urban Wastewater Reuse	200,000
Surface Storage	30,000
Urban Conservation	230,000
Agricultural Conservation	215,000
Total Yield Increase	**3,000,000**

The current status of this program is unclear. The plan was released in October 1995 by the Bureau of Reclamation and U.S. Fish and Wildlife Service. At that time, the plan noted that, "at some future date, Congress may authorize implementation of the CVP Yield Increase Plan". Clarification is required as to how this program will enjoin or become incorporated into the CVPIA Water Acquisition programs.

1994 Bay-Delta Agreement [8]

A dispute over the amount of water allocated for the environment by the CVPIA and the 1994 Bay-Delta Accord has intensified in recent months. The disagreement between state and federal officials, as well as water interests and environmental groups, focuses upon whether the maximum 1.1 million acre-feet provided for environmental purposes by the Accord includes part or all of the 800,000 AF allocated for fishery needs by the CVPIA. Central Valley Project water service contractors in the San Joaquin Valley may lose additional supplies if the Accord and CVPIA's environmental dedications are accounted for separately and not linked together.

On August 12, Governor Wilson in a letter to President Clinton, stated that the Accord's "no net loss" provision coupled with the environmental water dedication of 1.1 MAF mandates a 1.1 MAF ceiling for environmental water, including the CVPIA's 800,000 AF ("(b)(2) water"). Contrary to the Governor's interpretation, environmental interests argue only part of the (b)(2) water is included in the Accord's environmental obligations. Recently the U.S. Fish and Wildlife Service determined that it is appropriate to

[8] Northern California Water Association Newsletter, Volume 6, Number 9 (September 1997) *"Delta Environmental Flows Questioned."*

use (b)(2) water for additional Delta fishery benefits above the standards specified in the Accord[9].

Clarification therefore is required as to how CALFED will "dovetail" Delta needs arising from the 1994 Delta Accord into the CALFED process. Is the 1.1 MAF mandate really a ceiling as the Governor believes, or is the actual environmental water allotment closer to the combined total of the 1.1 MAF plus the (b)(2) water as environmental interests and Wildlife opined?

STATE PROGRAMS

California Department of Water Resources

The California Department of Water Resources (DWR) recently released a draft version of Bulletin 160-98, the *California Water Plan Update*. In Chapter Seven, DWR emphasizes and advocates water transfers and conjunctive use over the development of new surface water storage facilities. The following summarizes our understanding of existing and proposed water transfer programs advocated by DWR.

Supplemental Water Purchase Program

The Supplemental Water Purchase Program (SWPP) would be in effect for 5 years and would be implemented in years during which DWR was unable to deliver enough State Water Project water to meet contract entitlement obligations. The program is intended to fill all or part of the shortfall between deliveries of entitlement water to the participating contractors and requests from those contractors up to their full Title A entitlement for that year. Currently, annual entitlements to project water total 4.1 MAF. According to DWR's California Water Plan Update (Bulletin 160-93), the State Water Project has the estimated capacity to deliver an average of 2.4 MAF per year of water. To meet its water entitlement obligations, DWR will acquire water from willing sellers from areas of the State where water could be moved to and through SWP facilities (primarily northern California farmers).

Originally envisioned a 400,000 acre-feet per year program involving both surface and groundwater supplies, the SWPP has been downsized to a 200,000 acre-feet per year program that will involve only surface water in storage. The groundwater element was removed from the program due in part to heavy opposition expressed by northern Sacramento Valley farmers and residents during the public review process. Beginning in 1998, the SWPP intends to provide 200,000 AF of stored surplus surface water for conveyance to State Water contractors for a five-year period.

State Water Project Future Supply Program

Conjunctive use and groundwater banking are advocated by DWR as high priority solutions to statewide water deficiency. Even though it is acknowledged that there is a need to proceed slowly and deliberately, DWR has concluded in their recent draft release of Bulletin 160-98 that a "*moderate level of conjunctive use in the Central Valley is achievable*". The report then goes on to state: "*...it is assumed that a conjunctive use of 1 MAF storage (divided equally between Sacramento and San Joaquin Valley) is reasonable and is assumed as a statewide water management option*" (emphasis added). DWR's proposal suggests that Sacramento River Valley groundwater will be used to partially replenish the San

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[9]Association of California Water Agencies *News*, Volume 25, No. 18 1 September 1997. "*State Legislators, Governor Wilson, U.S. Senator Feinstein Call for One-Year Extension of Bay-Delta Accord*".

Joaquin aquifers, which currently contain over 50 MAF of available, depleted aquifer storage volume[10].

If this were to occur, the San Joaquin basin groundwater resource would benefit, and the Sacramento river Valley would bear the burden. If included in the final draft, such a program will place yet another burden on the Sacramento River and the valley, especially if the potential develops for open market demand of replenishment water for the San Joaquin basin. What justification does DWR have to document the seemingly arbitrary volume of 1.0 MAF? This section of the draft Bulletin, as currently proposed, will generate an energetic response from many Sacramento Valley groundwater users.

Storage Contingency Programs---Supply Augmentation

DWR advocates the following to provide supplemental water during emergency drought situations[11]:

- Spot market water transfer purchases
- State Drought Water Bank purchases (820,664 AF purchased in 1991; 193,246 AF purchased in 1992).[12]
- Long-term water transfer options contracts
- Water transfers from other areas

Additional information is required to evaluate spot market water transfer purchases, long term water transfer options contracts, and water transfers from other areas.

DWR is also developing programs that will advocate additional use of groundwater stored through conjunctive use operations or banked, including projects in the American Basin and Lower Colusa Basin, and at Los Rios Farms, Provident Irrigation District, Chico M&T Ranch, and Western Canal & Richvale Irrigation Districts[13]. It should be noted that full groundwater basins cannot provide storage unless over-extraction of groundwater occurs.

California Department of Fish & Game / State Water Contractors DWR

Water Exchange Program

On Mill Creek in Tehama County, a water exchange agreement specifies the use of pumped groundwater for irrigation purposes in exchange for instream water rights to augment transport flows for adult spring

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[10] Due to over-pumping of the resource earlier in the century.

[11] California Department of Water Resources. *California Water Plan Update. Draft Chapter 7.* 1997.

[12] Drought Water Bank can also be activated to meet "critical" water needs, including those resulting in any shift to perennial crops.

[13] DRAFT DWR Table, *Potential Conjunctive Use Projects*, distributed at Public Meeting in Red Bluff by DWR on June 26, 1997.

run chinook salmon[14]. Funded by the California Department of Fish and Game and the State Water contractors DWR, upon the recommendation of the Delta Pumps fish Protection Agreement Committee, this project advocates replacement of surface flows with groundwater to provide fish passage benefits. The Mill Creek project provides 25 cubic feet per second of flows, if necessary.

Similar programs are being proposed through CALFED and the CVPIA along other east-side tributaries to the Sacramento River, including Deer Creek, Antelope Creek and Battle Creek. The magnitude and coordination with other environmental programs must be explained and accounted for. Further, an estimate of the total volume of water likely to be involved should be provided.

What these types of programs do not discuss are the multiple downstream uses that will also benefit from these releases. If the flows are truly to benefit aquatic habitat, shouldn't this water be left "in-stream" all the way to the mouth of the Golden Gate? If not, and these "habitat" flows are exported out of the Delta at Tracy or Banks, we would hope that the "willing sellers" are properly compensated for the true worth of their water. Further, if groundwater pumping is used to replace water previously derived from surface sources, the groundwater management authority of the local government should also be adhered to, since the proposed action is, in effect, advocating additional local groundwater development.

The Monterey Agreement

In 1995, prompted by shortages of deliveries of water from the SWP, the DWR approved for permanent transfer up to 130,000 acre-feet of water between willing agricultural sellers and willing urban buyers as part of the *Monterey Agreement*. The agreement obligates Kern County Water Authority to make available to willing buyers any portion of the 130,000 acre-feet entitlement not made available by other agricultural contractors through the year 2010.

OTHER ENVIRONMENTAL WATER PROGRAMS

Central Valley Habitat Joint Venture (CVHJV)[15]

The CVHJV is a public-private partnership formed in 1988 to implement the North American Waterfowl Management Plan in the Central Valley of California. The Joint Venture was formed with a goal to protect, maintain and restore habitat to increase waterfowl populations to desired levels in the Central Valley consistent with objectives of the North American Waterfowl Management Plan. Included in the six goals for the Central Valley is the need to secure 402,450 AF of water for 15 existing refuges in the Central Valley. This water will be derived from CVPIA water acquisition programs, and thus, appears to be included within the values discussed previously under "Central Valley Refuge Water Supply Program."

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[14] Mill Creek Conservancy, CH2M Hill. *Mill Creek Watershed Management Strategy Report*. January 1997.

[15] California Department of Water Resources, *California Water Plan Update - Bulletin 160-98*. Draft Chapter 7. 1997.

Delta Wetlands Properties[16]

Delta Wetlands Properties (DWP) proposes a water storage project on four islands in the Delta. The project would involve diverting and storing water on Bacon Island and Webb Tract and seasonally diverting water to create and enhance wetlands and to manage wildlife habitat on Bouldin Island and Holland Tract. To operate its project, DWP would improve and strengthen levees on all four islands and install additional siphons and water pumps on the perimeters of the reservoir islands. DWP would operate the habitat islands primarily to support wetlands and wildlife habitat. While the purpose of the project is to divert surplus Delta inflows, it can also transfer water, or bank water for later sale and/or release for Delta export or to meet water quality or flow requirements for the Bay-Delta estuary. The reservoir islands would be designed to provide a total estimated initial capacity of 238,000 acre-feet.

URBAN WATER AGENCY TRANSFERS

California Urban Water Agencies/Agricultural Group

Faced with relatively fixed supplies, growing uncertainty, and rising demand, an ever increasing number of urban water agencies are turning to water transfers as a least cost solution. Exactly how many water agencies are looking to bridge the gap between their demands and supplies and the amount of water that may be involved is unclear. While this is a statewide phenomena and transfers involving up to 500,000 acre-feet of Colorado River water annually are part of the story, we limit our comments to transfers of northern California water from agriculture to urban water agencies.

While there are no comprehensive official estimates of the number of water transfers under discussion or the amount of water likely to be transferred, these are likely to be substantial. We would encourage both the Bureau of Reclamation and the DWR to conduct an accounting of the amount of northern California water likely to involved.

CONCLUSION

Table 2 summarizes the target demand values proposed by various programs. This data is not official or complete; development of such data is the responsibility of the appropriate agency This information is presented to illustrate the degree to which northern California water is proposed for reallocating and the uncertainty and speculation involved in estimates of cumulative effects. For the purposes of comparison, approximately 2.4 MAF of groundwater are currently extracted annually in the entire Sacramento Valley.

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[16] California Department of Water Resources, *California Water Plan Update.* Draft Chapter 7

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Table 2: Estimates of Current and Proposed Reallocations of California Water

Program	*Estimates of Volume of Water to be Reallocated (acre-feet)* Low	High
Federal / Joint Programs		
CALFED	4,100,000	5,600,000
CENTRAL VALLEY PROJECT		
CVPIA	800,000	800,000
Interim Acquisition Program	378,246	>378,246
Long-Term Acquisition Program	227,000	>227,000
CVP Least-Cost Yield Increase Plan	3,000,000	3,000,000
1989 Bay-Delta Agreement	1,100,000	>1,100,000
State Programs		
DWR		
Supplemental Water Purchase Program	200,000[17]	400,000[18]
State Water Project Future Supply Program (Conjunctive Use)	1,000,000	1,000,000
Storage Contingency Programs - Supply Augmentation (Drought Water Bank Only)	193,246 (1992)	820,664 (1991)
MONTEREY AGREEMENT	130,000	Potentially >130,000
Other Environmental Water Programs		
Central Valley Habitat Joint Venture[19]	402,450	402,450
Delta Wetlands Properties	238,000	238,000
Urban Water Agency Transfers	Unknown	Unknown

[17] Current estimate using surplus surface storage water only.

[18] Original estimate proposed in Draft EIR

[19] To be supplied with CVPIA water acquisitions.

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UNRESOLVED ISSUES

It is obvious that there are many unanswered questions introduced in this paper. Key unresolved issues include the following:

- When will the public be able to review detailed information regarding the CVPIA Long-Term Water Acquisition Program?
- In what manner will the CVP Yield Increase Plan be implemented? Does the proposed yield increase supplement the target goals of the CVPIA water acquisition programs?
- Is the 1.1 million acre-feet Delta Accord mandate really a ceiling as Governor Wilson believes, or is the actual CVPIA environmental water allotment closer to this amount plus the (b)(2) water as environmental interests and USFW support?
- What type of documentation do the State Water Resources Control Board, Department of Water Resources, Bureau of Reclamation, and others have to help us understand the magnitude of past, present, and future spot market water transfer purchases, long-term option contracts, and water transfers?

A comprehensive analysis of all of these issues, along with an accountable public process, are required to better answer the following questions:

- How much water will each program require?
- Where will this water come from?
- When will "pre-project" conditions be documented?
- Where will this water be used?
- What measures are being taken to inform communities and the public of the proposed transfers and/or new water development?
- What monitoring and evaluation of impacts will be conducted?
- What will the combined impact of these programs be on existing water resources and uses?
- What assurance will be provided to ensure that communities of origin and the public participate?
- What mechanisms will be adopted to avoid, mitigate, or compensate adversely impacted communities?

These questions are important, and answers will provide insight into cumulative impacts associated with mass water transfers. Conjunctive use, groundwater banking, water reallocation, and water acquisition may indeed take advantage of California's sophisticated water supply network, as many water transfer proponents suggest. While we recognize the environmental and economic obstacles to new surface storage facilities, we note that conjunctive use, water banking and water marketing measures are also problematic.

We hope that this paper will serve to stimulate discussion and to encourage the appropriate agencies to develop and make available official estimates of how much water is involved, whether through regulatory or market mechanisms. Only then will communities and water planners be able to assess the full implications of water reallocation. And only then will Californians be able to prudently debate water transfers.

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